Library Science

AUG 13 1940

THE BOOKLIST

VOLUME 36 | AUGUST, 1940 In Two Parts, Part 2 | NUMBER 22

Industrial Training for National Defense

by

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Industrial Training for National Defense

By CHARLES M. MOHRHARDT, *Chief, Technology Department, Detroit Public Library*

THIS selected list of up-to-date titles has been prepared for libraries, vocational and trade schools, and for governmental agencies who are cooperating in the training for national defense programs. It includes the subjects listed in the recent report of J. W. Studebaker, U. S. Commissioner of Education, entitled *Training for National Defense*, with a few additions.

A number of the more important publications of American manufacturers are included in the list. The following symbols are used to indicate the readers to whom the books will be most useful:

V For vocational students, apprentices, and beginners

M Machinists, skilled workmen, factory superintendents, and foremen

SE Student engineers and designers

E Engineers and designers

The author wishes to express his appreciation to the following librarians for their many helpful suggestions: Harry C. Bauer, Technical Librarian, Tennessee Valley Authority; Paul Howard, Head, Industry & Science Dept., Enoch Pratt Free Library, Baltimore; Ellwood H. McClelland, Technology Librarian, Carnegie Library, Pittsburgh; Margaret C. Scoggin, In Charge of Work with Vocational High Schools, New York Public Library; Gilbert O. Ward, Technical Librarian, Cleveland Public Library.

Airplanes and Airplane Engine Construction and Maintenance

BRIMM, DANIEL JOHNSON, and BOGGESS, H. E. Aircraft engine maintenance. 1939. 470p. illus. diag. Pitman, $2.50. (V; M)

This excellent manual gives practical directions for adjusting, repairing, and tuning up the aircraft engine. Considers in some detail engine construction, repair methods and tools, servicing and operating, carburetors and induction systems, fuel systems, lubrication, electrical equipment, instruments, propellers, installation, overhaul, and fuels and oils. Comparative engine data is given for 13 American airplane engine manufacturers.

——Aircraft maintenance. Rev. ed. 1940. 492p. illus. diag. Pitman, $2.50. (V; M)

An unusually clear and practical repair manual for the home student and student mechanic. Explains each job and tells in detail what to do and what tools to use. Covers aircraft wood and metalwork, aircraft fabric work and rigging, handling and maintenance. Profusely illustrated.

LOUDY, FLAVIUS E. Metal airplane structures . . . design and construction of the major component parts of various airplanes; discusses the underlying principles of design, materials of construction, structural elements, welded joints, riveted joints, stressed skin design, metal wings, metal beams, fuselage, hull and float design. 1938. 455p. illus. diag. N. W. Henley, $5. (M; SE)

A practical engineering manual.

PAGÉ, VICTOR WILFRED. Airplane servicing manual, maintenance, rigging, trouble shooting, inspection, repair, aircraft radio. A complete work of reference in plain language . . . for shop and field mechanics and airport executives outlining all machinery, shop layout, hangar equipment, tools, supplies and mechanical processes incidental to servicing airplanes of all types, including latest U. S. Air corps maintenance practice . . . instructions for welding, heat treatment, and manipulation of all important materials of construction, and numerous tables and formulae, with special reference to metal airplanes and modern applications of duval and stainless steel. 1938. 1000p. illus. N. W. Henley, $6. (V; M)

The most comprehensive recent book on the subject. Clearly written and detailed. Almost encyclopedic in scope.

THOMPSON, JAMES G. Aviation service and maintenance; a reference manual for the operator and mechanic; a complete course of instruction for light plane owners and student mechanics. 1937. 165p. illus. Aviation press, 580 Market st., San Francisco, paper, $3. (V; M)

Author is technical editor of the periodical *Western Flying*. The sections on commercial airplanes and engines describe in detail practical servicing operations. Some of the airplanes and engines considered are: Pratt & Whitney, Wright, Curtiss, Warner, Waco, Taylor, etc.

TITTERTON, GEORGE F. Aircraft materials and processes. 1937. 328p. illus. Pitman, $3.50. (M; E)

Thoroughly describes the various types of metals and non-metallic materials used in aircraft construction and explains their treatment, uses, sizes, general characteristics, etc. Non-metallic materials

include wood and glue, fabrics and dope plastics and glass. Chapters also consider welding, brazing and soldering, corrosion and selection of materials.

WRIGHT AERONAUTICAL CORP. Instructions for the operation and maintenance of the Wright whirlwind aviation engine, series R-760E, R-975E and R-975F. 9th ed. 1939. unp. illus. pl. looseleaf. The Corporation, Paterson, N. J., $3. (M)

A complete, well-illustrated shop manual.

YOUNGER, JOHN H., and OTHERS. Airplane maintenance, a textbook for airplane mechanics . . . 1937. 353p. illus. McGraw-Hill, $3. (V; M)

An elementary text for the private pilot and for mechanics employed in large repair shops. Considers the repairing, maintenance and testing of the airplane exclusive of the engine.

Automobile Construction and Maintenance

BLANCHARD, HAROLD F., *ed.*, and OTHERS. Motor's factory shop manual. 3d ed. 1939. 502p. illus. diag. tab. Motor, 572 Madison ave., N. Y., paper, $3. (V; M)

Describes the features and repair procedure for modern trade-name automobiles and their parts. Following a general section on carburetors, air cleaners, fuel pumps, filters, brakes, etc., is an extensive section on individual cars arranged alphabetically by trade name. The information given for each car includes motor tune-up, lubrication, electrical system, transmission, clutch, steering, etc. One of the best repair manuals because it gives definite repair data for every American built car.

CUMMING, W. J. Automotive Diesel maintenance. 1940. 106p. illus. Pitman, $1.75. (M)

The first American publication devoted entirely to Diesel engine maintenance. Separate chapters discuss fuels, fuel injection, engine timing, cylinder block and head, crankcase and crankshaft, bearings, lubrication, engine operation and fuel economy. The last three chapters describe the repair shop layout and maintenance and salvage methods.

DE CAMP, JOHN TAYLOR. Automotive transportation for the military service . . . 1936. 281p. illus. Coast Artillery Journal, 1115 Seventeenth st., N. W., Washington, D. C., $3. (V; M)

This brief text describes the various parts of the automobile and explains their function. Separate chapters are given over to the discussion of cylinders, pistons and rings, valve timing, carburetors, ignition, clutches, brakes, engine overhaul, painting, inspection, maintenance, etc. Written by two army instructors in motor transportation and reviewed and approved by Professor E. H. Hamilton of New York university.

DYKE, A. L. Dyke's automobile and gasoline engine encyclopedia; the elementary principles, construction, operation and repair of automobiles, gasoline engines and automobile electric systems, including trucks, tractors, motor coaches, automotive Diesel engines and motorcycles . . . 19th ed. 1940. 1323p. illus. diag. Goodheart-Willcox, $6. (V; M)

The subtitle indicates the wide field covered by this outstanding encyclopedia. It is written in a clear and practical manner and is intended for students, repair men and car owners. Profusely illustrated and completely indexed.

GRAHAM, FRANK D. Audels new automobile guide for mechanics, operators and servicemen, with questions and answers and illustrations on the theory, construction and servicing of motor vehicles including Diesels. 3d ed. 1940. 1600p. illus. Audel, 49 W. 23d st., N. Y., $4. (V; M)

A husky volume containing elementary information on the basic principles of automobile construction and practical directions for making repairs. Clearly and carefully describes the step-by-step procedure to be followed in repairing all automobile failures. Profusely illustrated with line drawings, photographs and charts. Indexed for quick reference.

KUNS, RAY FOREST. Automotive service. Rev. ed. 1938. 2v. 527p; 513p. illus. diag. Bruce pub. co., $3.50; $3.75 (V; M)

A detailed practical discussion of all phases of automobile repair and maintenance. Step-by-step directions are given for each repair or adjustment operation. Volume 1 considers the service station, frames, suspension systems, steering, transmission, clutches, universal, front wheel drive, rear axles and brakes: Volume 2, engines, oil and cooling systems, engine repair and maintenance, fuel and ignition, and automobile electricity.

PACKER, A. H. Electrical trouble shooting on the motor car . . . 4th ed. 1938. 558p. illus. diag. Author, 8130 Harper ave., Chic., $4. (V; M)

Practical shop data on automobile and airplane electrical trouble-shooting and tune-up work. Automobile radio servicing is also considered. Suitable for self-instruction and for trade school use.

PACKER, C. E. Automotive body and fender repairs. 1939. 326p. illus. Goodheart-Willcox, $3. (V; M)

The most complete and practical book available on the subject. The first 200 pages clearly describe methods of body and fender repair, panel replacement, servicing doors and locks, upholstery cleaning, etc. The remainder of the book covers every phase of automobile painting, the equipment needed, the spray gun, lacquers, sanding, stripping, etc.

Bench Work

(*See* Machine Shop Practice)

Blacksmithing and Forging

CRANE, E. V. Plastic working of metals and power-press operations. 2d ed. 1939. 450p. illus. diag. Wiley, $5. (SE; E)

Describes the characteristics of power presses and dies and their use in shearing, bending, cold working drawing, and hot press forging. Information also is given for modifying and adapting presses. An extensive appendix explains graphical computations and lists design data.

HARCOURT, ROBERT H. Elementary forge practice; a text book for technical and vocational schools. 3d ed. Rev. & enl. 1938. 182p. diag. Manual arts press, $1.75. (V)

The materials and equipment used in hand and drop forging are clearly explained and illustrated with line drawings. Primarily concerned with hand forging practice (blacksmithing). To illustrate the various processes, 38 projects are given with instructions for completing them. Very elementary. Presupposes no knowledge of forging work.

JOHNSON, CARL G. Forging practice; a practical treatise on hand forging of wrought iron, machine steel and tool steel; and heat treatment of steel, including annealing, hardening and tempering. 1938. 136p. illus. American technical society, $1.50. (V; M)

An elementary discussion of the composition of iron and steel and the processes of forging, annealing, hardening, and tempering. Unlike the title by Harcourt, this book is primarily concerned with power presses.

JONES, LYNN C. Forging and smithing; a book for schools and for blacksmiths. 1924. 211p. illus. diag. Century, $2. (V)

An excellent elementary text on blacksmithing for trade and vocational schools. Part 1 considers the shop and its equipment; Part 2, the shop and its processes; Part 3, elementary forging and practical blacksmithing. An appendix lists bar and sheet sizes and weights, temperatures and melting points, fasteners, etc.

LUCAS, C. W. Press work pressures. 1935. 128p. diag. McGraw-Hill, $4.15. (SE; E)

Technical data for the engineer. Considers coining, drawing, embossing, forging, forming, hook seaming and curling, punching, shearing, riveting, etc. The drawings for each type of work are printed on the left-hand page and the discussion of the drawings on the right-hand page. Clearly illustrated.

NAUJOKS, WALDEMAR, and FABEL, D. C. Forging handbook. 1939. 636p. illus. diag. American society for metals, 7301 Euclid ave., Cleveland, $7.50 (M; SE; E)

Comprehensive discussion of all phases of forging practice: history, forging equipment and practice, design of forgings, costs, job estimating, forge plant design and maintenance, cleaning and heat treating of forgings, die blocks and forge dies, testing and inspection, furnaces and forging materials. Contains a good list of forging definitions and mathematical tables and data.

Blueprint Reading

(*See also* Mechanical Drawing)

ALMEN, H. V., and MEAD, R. K. Aircraft blueprint reading. 1940. 124p. Pitman, $1. (V; M)

An elementary textbook for "students of the mechanical crafts involved in the aircraft industry." Sample prints are used to illustrate machined parts details, details of sheet metal and formed parts, assembly details, major assembly blueprints and schematic diagrams.

BRAHDY, JOSEPH. Blueprint reading. Rev. ed. 1929. 194p. illus. McGraw-Hill, $2. (V; M)

A well-illustrated elementary discussion of the principles of projection as applied to mechanical drawings. Written primarily for the mechanical trades.

FORTMAN, ROBERT H., and MCKINNEY, J. Blueprint reading for the machine trades, a practical handbook on reading working drawings, assembly drawings, scale drawings, manufacturing drawings, tool drawings, installation drawings. 1932. 154p. illus. American technical society, $1.50. (V; M)

Clear, practical, elementary.

HEBBERGER, BEN F., and NICHOLAS, C. Blueprint reading for the building and machine trades. 1937. 116p. diag. McGraw-Hill, $1.80. (V)

Fifty-six drawings are included in this elementary text which is intended for trade and vocational schools.

LINCOLN ELECTRIC COMPANY. Simple blueprint reading, with particular reference to welding and welding symbols of the American welding society. 1939. 141p. diag. The Company, 12818 Coit rd., Cleveland, mimeo., 50c. (V; M)

Simple and practical.

OWENS, A. A., and SLINGLUFF, B. F. How to read aircraft blueprints. 1940. 257p. illus. Winston, spiral binding, $4. (V; M)

Thoroughly practical text for the beginner. Part 1 explains the elements of blueprints, such as blueprint sizes, titles, bills of material, dimensions, sections, relations of views, etc. Part 2 explains the fundamentals of blueprint reading, i.e., visible and invisible surfaces and edges, plans and elevations, etc. Part 3 consists of 39 blueprints used in the construction, installation and maintenance of aircraft. A set of directions and questions accompanies each print. Contains a 26-page dictionary of aeronautical terms.

——How to read blueprints. 1938. 204p. diags. Winston, spiral binding, $3.50; textbook ed., $3. (V; M)

Clear elementary discussion of blueprint reading in 10 special fields—cabinet work, structural steel, air conditioning, mechanical construction, reinforced concrete.

Coremaking

(*See also* Foundry Work)

DOSEY, WILLIAM, and SCOTT, E. F. Core making and machine molding. 1928. 123p. illus. International textbook co., $1.50. (V; M)

Clearly written, well-illustrated, elementary text. The first part thoroughly explains the process of making dry and green-sand cores; core sands and binders, coremakers' tools, core ovens and coremaking machines. The second part discusses machine molding equipment and operations.

Die-Casting

CHASE, HERBERT. Die castings; their design, composition, application, specifications, testing and finishing. 1934. 264p. illus. diag. Wiley, $3.50. (E; SE; M)

Is primarily concerned with the composition, uses and design of die castings and gives little information on production methods. Some of the subjects covered are specialized applications (to automobiles, machine elements, etc.), alloys, design of die-casting, specifications, inspection and tests, and finishes.

HERB, CHARLES O. Die-casting; the die-casting process and its application in modern manufacture, die-casting machines, design of different types of dies, composition and properties of die-casting alloys, and the die-casting of zinc, aluminum, brass and other non-ferrous alloys, and cast iron. 1936. 300p. illus. diag. Industrial press, 148 Lafayette st., N. Y., $3. (E; SE; M)

Profusely illustrated with typical industrial applications.

Die Design and Diemaking

(*See also* Toolmaking)

COLE, CHARLES BRADFORD, and CURTIS, F. W. Tool and die design, a practical handbook on tool design, die making, and metal stamping. 1932. 135p. illus. American technical society, $1.50. (V; M)

General introduction for home study.

CORY, CHARLES RUSSELL. Die design manual. 2 parts. 1939. 127p; 79p. illus. Author. 133 Cambridge blvd., Pleasant Ridge, Mich., pa., $1.25; $1.00. (SE; E)

Part 1, Cutting dies; Part 2, Forming dies. Up-to-date information for the designer.

DANNES, GEORGE. Die designing and estimating. Advanced series. 1940. 55p. illus. Tool, die, machine progress, 2460 Fairmount blvd., Cleveland, $1.30. (SE; E)

Brief, practical instructions for estimating the production cost of tools and dies. Considers the operations involved in making a die, i.e., machining die blocks, drilling, reaming and topping, layout and inspection, machining, finishing and assembling. The final three chapters present complete estimating data for a progressive pierce and cut-off die, a compound die and a three station progressive die. Based on actual shop practice.

JONES, FRANKLIN D. Die design and diemaking practice. 1930. 921p. diag. Industrial press, $6. (M; SE; E)

"A treatise for die designers and diemakers containing illustrated descriptions of a large variety of selected dies for all kinds of power press operations, with practical information and data on approved designing practice and die construction."—*Subtitle.*

MARSHALL, E. G. Practical die design and die making. 1937. 144p. illus. diag. McGraw-Hill, $2. (M; SE; E)

Modern methods of die designing and diemaking written by an experienced diemaker. Intended for detail draftsman and experienced machinists. Separate chapters are devoted to the various types of dies for blanking, piercing, broaching, forming, trimming, etc.

STANLEY, FRANK A. Punches and dies; layout, construction and use. 2d ed., rev. and enl. 1936. 476p. illus. diag. McGraw-Hill, $4. (M; SE; E)

Describes all types of punches and dies for blanking, piercing, cutting off, shaving, trimming, drawing, bending, embossing, swaging, large dies for automobile work, etc.

Drilling, Boring, and Milling Practice

(*See also* Machine Shop Practice)

BROWN & SHARPE MANUFACTURING CO. Practical treatise on milling and milling machines. 1939. 383p. illus. Author, Providence, R. I. paper, $1.50. (V; M; SE)

A clear, nontechnical explanation of milling machines, milling machine tools and attachments, and milling machine operation. Many illustrations.

COLVIN, FRED H., and STANLEY, F. A. Drilling and surfacing practice. Drilling, reaming, tapping, planing, shaping, slotting, milling and broaching. 1936. 431p. illus. McGraw-Hill, $4. (M; SE)

A practical guide which explains the equipment, tools and methods used in drilling, reaming, etc. Clear explanations and illustrations.

HINMAN, C. W. Practical designs for drilling and milling tools . . . 1938. 171p. illus. diag. McGraw-Hill, $2.50. (SE; E)

Based on the author's extensive experience as a tool designer. Avoids the use of higher mathematics. Clearly explains drilling jogs, work clamps, gages, supports, fastenings, trapping jigs, milling fixtures, air-operated fixtures and heavy duty jigs and fixtures.

Electricity

ABBOTT, ARTHUR L. National electrical code handbook; based on the 1937 edition of the National electrical code. 4th ed. 1937. 561p. illus. diag. McGraw-Hill, $3. (V; M; SE; E)

Enables the reader to understand the details of the National electrical code. Part 1, Definitions; Part 2, Types of wiring under approved conditions; Part 3, Installation of material and apparatus; Part 4, General requirements for wiring installations; Part 5, Special cases; Part 6, Tables, devices, fittings and equipment.

CROFT, TERRELL W., and HALL, G. H. Electrical machinery; principles, operation and management. 4th ed. 1938. 394p. illus. diag. McGraw-Hill, $3. (V; M)

A practical, simplified explanation of the basic principles, operations and maintenance of a.c. and d.c. machinery.

GRAHAM, FRANK D. Audels handy book of practical electricity with wiring diagrams; ready reference for professional electricians; students and all electrical workers. 2d ed. 1937. 1218p. illus. diag. Audel, $4. (V; M)

Simple, complete and clear explanation of electricity, conductors, insulators, electrical and mechanical energy, magnetism, storage batteries, electroplating, transformers, converters, rectifiers, wires and wiring, sign flashers, motors, power stations, electric railways, pumps, elevators, cranes, bells, telegraph, telephone, welding, refrigeration, oil burners and radio.

NADON, JOHN M., and GELMINE, B. J. Industrial electricity. 1939. 607p. illus. diag. Van Nostrand, $3. (V; M)

Written for practical electrical workers. Includes material on the fundamentals of electricity and magnetism, wiring, armature winding, a.c. and d.c. generators, controllers and motors, instruments, transformers, electron tubes and electric welding. Also has a section on electrical algebra, geometry and trigonometry. Based on author's experience as an instructor in the Ford motor company, Apprentice school.

RICHTER, HERBERT P. Practical electrical wiring; residential, farm and industrial. 1939. 503p. illus. diag. McGraw-Hill, $3. (V; M)

Limited to the wiring of circuits operating at 600 volts or less. Part 1, Principles of electric wiring and the materials to be used; Part 2, Wiring of residential, farm and apartment buildings, installation of outlets, and wiring of old buildings; Part 3, Instructions for the wiring of factories, schools and stores. Clear and practical information.

VEINOTT, CYRIL GEORGE. Fractional horsepower electric motors—what makes them run and what they will do—how to repair, rewind and reconnect them. 1939. 431p. illus. McGraw-Hill, $3.50. (V; M; SE)

Practical descriptions and data on 18 major types of small electric motors.

Engine Design and Construction

ELLIOTT, BENJAMIN GEORGE, and OTHERS. The gasoline automobile. 5th ed. 1939. 754p. illus. diag. McGraw-Hill, $4. (M; SE)

A textbook which explains the basic principles and fundamentals of automobile design and construction. Describes the engine and its components, lubrication, cooling, ignition, chassis, transmission, and rear axle.

HELDT, P. M. High-speed combustion engines, design, production, tests. 10th ed. 1939. 742p. illus. pl. Author, Nyack, N. Y. $7. (SE; E)

A text for student engineers and a reference manual for practicing engineers. Thoroughly discusses the design of all internal combustion engine parts, and their production and testing.

——High-speed Diesel engines for automotive, aeronautical, marine, railroad and industrial use, with a chapter on other types of oil engines. 3d ed. 1940. 475p. illus. Author, $4. (SE; E)

Presents a survey of the work that has been done here and abroad on high-speed Diesel engine design and construction. Intended for designers and experimental engineers.

MORRISON, LACEY H. American Diesel engines. 2d ed. 1939. 489p. illus. diag. McGraw-Hill, $5. (SE; E)

A general engineering survey of all types of commercial American Diesel engines; both mobile and stationary. Considers air and mechanical injection systems, fuels, high-speed Diesels, frames, bearings, crankshafts, pistons, connecting rods, etc.

TAYLOR, C. FAYETTE, and TAYLOR, E. S. The internal combustion engine. 1938. 322p. illus. tab. International textbook co., $3.50. (SE; E)

"The object is to furnish a basic understanding of the functioning of the internal combustion engine which may serve as a foundat') for design or research in this field."—*Preface.* Unlike other books on the internal combustion engine, this one is chiefly concerned with the engine characteristics and not with the functions of the individual parts. Contains an extensive bibliography.

Forging

(*See* Blacksmithing and Forging)

Foundry Work

(*See also* Coremaking)

AMERICAN FOUNDRYMEN'S ASSOCIATION. Alloy cast iron. 1939. 257p. diag. tab. Author, 222 W. Adams st., Chic., $3. (SE; E)

Comprehensive and authoritative technical information on the manufacture, uses and properties of modern alloy cast iron, the effects of alloys on the physical and mechanical properties of gray irons, white and chilled alloy cast iron, heat treatment of alloy cast iron, foundry practice for alloy cast irons, and specific application of alloy cast iron. Contains a full bibliography and index.

——Cast metals handbook. 2d ed. 1939. 504p. illus. pl. The Association, $5. (SE; E)

". . . to bring engineers, designers and users of castings, condensed, authoritative and up-to-date information on the properties and uses of cast metals."—*Preface.* Includes detailed information on the properties and analyses of steel, iron, and non-ferrous alloys.

CAMPBELL, HARRY L. Metal castings. 1936. 318p. illus. diag. Wiley, $3. (M; SE)

A textbook of the metals and processes used in producing metal castings. Includes material on molding and core practice, melting processes, constitution and properties of cast iron, cupola, malleable iron, steel and non-ferrous castings.

DWYER, PAT. Gates and risers for castings: function and application of gates and risers in the production of gray iron, brass, bronze, aluminum, steel and malleable iron. 1935. 364p. Penton pub. co., 1213 W. Third st., Cleveland, $3. (M; SE; E)

A comprehensive monograph on a specialized phase of foundry practice.

HARTLEY, LAWRENCE A., and OTHERS. Elementary foundry technology. Rev. ed. 1937. 377p. illus. Penton pub. co., $3. (V; M)

". . . designed to conform with the requirements for instruction material as set up in the minimum standards of Four-Year Apprenticeship . . ." and sponsored by the National founders association. Includes material on physics, mechanics and fluids, materials oxidation, reduction and combustion, iron and its structure, foundry sands, gates and risers, and molding machines.

STIMPSON, WILLIAM C., and GRAY, B. L. Foundrywork; a practical handbook on standard foundry practice, including hand and machine molding with typical problems, casting operations, melting and pouring equipment, metallurgy of cast metals, etc. 1939. 216p. illus. American technical society, $2. (V; M)

Thorough, clear, practical.

WENDT, R. E. Foundry work; a text on molding, dry-sand coremaking, melting and mixing of metals and problems in foundry management. 3d ed. 1936. 240p. illus. diag. McGraw-Hill, $2. (V; M)

Elementary in that it covers the principles of foundry work, yet advanced enough to present a good working knowledge of foundry practice. The main sections cover the principles of molding and coremaking, furnaces, properties of melting materials, non-ferrous melting and mixtures. Contains a glossary and several tables.

Gears and Gear Cutting

(*See also* Machine Shop Practice)

BUCKINGHAM, EARLE. Manual of gear design. 3 sections. 1935-7. 183p; 168p; 172p. illus. Machinery [Pub. by Industrial press], $2.50 each. (SE; E)

Comprehensive handbook on gear design for engineers. Presupposes some knowledge of gearing. Section 1, Mathematical tables; Section 2, Standards, formulas and tables for the design of spur and internal gearing; Section 3, Standards, formulas, and tables for designing helical gears for parallel shaft-driven and spiral gears for non-parallel, non-intersecting shafts.

COLVIN, FRED H., and STANLEY, F. A. Gear cutting practice; methods of producing gears for commercial use. 1937. 344p. illus. diag. McGraw-Hill, $3. (M; SE)

Considers the theory and practical details involved in gear cutting practice. Separate chapters are devoted to spur gears and helical cutters, shapers, helical and herringbone gears, hobbs and cutters, bevel gears, worm gears, and internal gears. The finishing, heat treatment, and inspection of gears are also considered.

——Grinding practice; typical machines and methods used in a wide variety of work. 1937. 310p. illus. McGraw-Hill, $3. (V; M; SE)

A comprehensive survey of the machines, auxiliary equipment and methods used in industrial grinding practice. Following a discussion of the various types of grinding machines and their construction, is a detailed explanation of typical grinding operations—cylindrical grinding, centerless grinding, surface grinding, crankshaft grinding, automatic and semi-automatic equipment, lapping and honing, polishing and buffing. Two chapters are given over to grinding wheels—their types, uses, mounting and dressing.

HEYWOOD, JOHNSON. Grinding wheels and their uses; a handbook and textbook on modern grinding and polishing practice and theory. 1938. 374p. illus. Penton pub co., $3. (M; SE)

Written under the auspices of the Grinding wheel manufacturers association and the Abrasive grain association. Describes the various types of grinding and wheels and their uses and then explains typical grinding operations, such as grinding cams and eccentrics, roll grinding, centerless grinding, buffing, polishing, grinding castings, etc. Recommends the type of wheel and its speed and feed to be used in each type of grinding operation.

JACOBS, FRED B. Tool room grinding. 1937. 221p. illus. diag. Penton pub. co., $3.50. (M)

Describes toolroom grinding equipment and explains the grinding of jig components, arbors, counterbores, reamers, milling cutters, precision gages and grinding operations in diemaking. A final chapter considers the salvaging of small tools.

JONES, FRANKLIN DAY. Gear design simplified. A series of gear-designing charts illustrating by simple diagrams and examples, the solutions of practical problems relating to spur gears, straight-tooth bevel gears, spiral-bevel gears, helical gears for parallel shaft drives, helical (spiral) gears for angular drives, herringbone gears and worm gears. 1937. 139p. illus. Industrial press, $3. (SE; E)

A series of gear-designing charts for various types of gears. Opposite each drawing of a gear-designing problem are a rule, a formula and a practical example worked out in detail. This book is not as advanced as Buckingham's.

NORTON COMPANY. Facts about grinding wheels. 1939. 76p. The Company, Worcester, Mass., free.

Brief, practical discussion of the characteristics of grinding wheels, selection of size and type to be used, and general grinding information. Concerned with grinding wheels manufactured by the Norton company.

SWIGERT, ARTHUR M. The story of superfinish. 1930. 672p. illus. diag. Lynn pub. co., 5106 Buckingham rd., Detroit, Mich., $5. (M; SE; E)

"Superfinish is the removal from the surface of a dimensionally finished metal part the fragmental metal resulting from turning, grinding, honing and lapping, when dimension and finish are simultaneously produced."—*Foreword*. This comprehensive, clearly written, practical monograph proceeds in an orderly manner from elementary principles to the most advanced techniques. Many practical industrial uses of superfinish are thoroughly explained and illustrated with excellent photographs and drawings. Author is director of production research, Chrysler corporation.

TRAUTSCHOLD, REGINALD. Standard gear book. Working formulas and tables in gear design. 1935. 314p. illus. McGraw-Hill, $3. (M; SE; E)

Explains the design, production, and uses of toothed gearing. Includes information on materials and heat treatment is also considered.

Industrial Hygiene and Safety

ASSOCIATED GENERAL CONTRACTORS OF AMERICA. Manual of accident prevention in construction; prepared under the supervision of the Accident prevention committee. 2d ed. 1938. 372p. illus. Author, 1227 Munsey bldg., Washington, D. C., $2.

Points out for the construction executive proper methods of organizing for safety, safety practices and safety rules. Three-fourths of the book is given to clear, concise statements of safety practices on construction jobs. For the plant manager and safety engineer.

CHENOWETH, LAURENCE BENJAMIN, and MACHLE, WILLARD. Industrial hygiene; a handbook of hygiene and toxicology for engineers and plant managers. 1938. 235p. illus. diag. Crofts, $2.

NATIONAL CONSERVATION BUREAU. Handbook of industrial safety standards. Rev. ed. 1938. 190p. illus. Author, 60 John st., N. Y., paper, 39c.

"Compilation of generally recognized industrial safety requirements." In abridged form, covering only the more important items. References are made to original codes from which the material is condensed. For the plant manager and safety engineer.

RED CROSS. U. S. AMERICAN RED CROSS. First aid textbook. Rev. ed. 1937. 256p. illus. Blakiston, $1; paper, 60c.

Standard text written in simple language, well illustrated, and indexed. Each phase of first-aid practice is thoroughly explained for the layman.

U. S. LABOR DEPARTMENT. Some rules for the safeguarding of hazardous machinery. 1936. 15p. U. S. Gov't printing office, free.

This small pamphlet will be valuable to the foreman, chiefly because of the 56 loose plates which accompany it. These demonstrate safety devices for machines.

U. S. PUBLIC HEALTH SERVICE. What to do in case of accident (Misellaneous pub. no. 21) Rev. ed. 1937. 71p. illus. Superintendent of documents, Washington, D. C., paper, 10c.

Well adapted to industrial conditions. For the factory workman.

Jigs and Fixtures

(*See also* Machine Shop Practice)

COLVIN, FRED H., and HAAS, L. L. Jigs and fixtures. A reference book showing many types of jigs and fixtures in actual use, and suggestions for various cases. 3d ed. 1938. 354p. illus. diag. McGraw-Hill, $3.50. (M; SE; E)

Explains the fundamental principles and the application of these principles to the design and construction of industrial jigs and fixtures. Each type is explained in some detail and is often illustrated by typical jigs and fixtures in actual use.

GWIAZDOWSKI, ALEXANDER P., and LORD, C. B. Economics of tool engineering; jig and fixture design. 1932. 203p. illus. McGraw-Hill, $2.50. (SE; E)

Presupposes a previous knowledge of machine shop practice. Concisely and clearly outlines tooling procedure, tool design, tooling methods, toolmaking, and engineering procedure.

JONES, FRANKLIN D. Jig and fixture design; a treatise covering the principles of jig and fixture design, the important constructional details and many different types of work-holding devices used in interchangeable manufacture. 2d ed. 1937. 350p. illus. Machinery, $3. (SE; E)

Basic design data. Originally published in 1920. Two new chapters on welded jigs and jigs of the automatic type have been added to this edition.

Lathes

(*See also* Machine Shop Practice)

ATLAS PRESS COMPANY. Manual of lathe operation and machinists tables. 1937. 234p. illus. The Company, 1822 N. Pitcher st., Kalamazoo, Mich., spiral binding, paper, $1. (V; M)

Complete information for operating Atlas and other types of metal cutting lathes. Discusses lathe construction, cutting tools, machining operations, holding the work, drilling and boring, thread cutting, lathe attachments, woodturning on the metal lathes. Includes a selected list of machinists' tables.

COLVIN, FRED H. Turning and boring practice; modern machines, tools and methods used in representative plants. 1936. 453p. illus. diag. McGraw-Hill, $4. (V; M; SE)

Thoroughly explains the construction and operation of trade-named machine tools, such as engine lathes, turret and semi-automatic lathes, automatic screw machines and boring machinery. The final section considers in detail the types of cutting tools used for various materials, e.g., iron, steel, alloys and plastics.

LONGSTREET, J. R., and BAILEY, W. K. Turret lathe operator's manual. 1940. 240p. illus. Warner & Swasey co., Carnegie and Stillwell aves., Cleveland, $2.50. (V; M; SE)

This outstanding operator's manual clearly describes modern turret lathes, their equipment and their operation. It will help the operator to solve the many problems he meets in his daily work. Illustrated with many line drawings and photographs showing parts and operations.

SOUTH BEND LATHE WORKS. How to run a lathe; the care and operation of a screw cutting lathe. 35th ed. 1939. 128p. illus. Author, 435 E. Madison st., South Bend, Ind., paper, 25c; leatherette, 75c. (V; M; SE)

Up-to-date authoritative information on almost every type of lathe setup and operation. Also contains tables of useful shop information, such as formulae, cutting speed tables, cutting screw threads, taper turning, boring, milling, keyway cutting, and gear cutting. A practical manual for the machinist.

Machine Shop Practice

(*See also* Drilling, Boring and Milling Practice, Gears and Gear Cutting, Jigs and Fixtures, Lathes)

AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Manual on cutting of metals; single point lathe tools. Prepared by A.S.M.E. Committee on metal cutting data. 1939. 319p. diag. The Society, $5. (M; SE; E)

A comprehensive study of single-point cutting tools, such as those used on lathes and similar machines. Part 1 describes factors influencing the cutting of metals—tool shape, lubricants, etc. Part 2 consists of detailed tables giving the cutting speeds and horsepower required for various feeds and depths of cut for cutting steel and cast iron. Part 3 explains methods of calculating cutting speed, chip pressure, horsepower and economic tool life for any given conditions. Written for the engineer, factory supervisor, and trained machinist.

BARRITT, JOHN W. Machine shop operations. 1937. 790p. illus. diag. American technical society, $5. (V; M; SE)

The 267 "job tickets" which make up this volume explain typical operations on a lathe, milling machine, boring mill, shaper, planer and drill press. The step-by-step operations and tools required to complete each job are given. Descriptive material is also included on measuring tools, bench work, floor work, and layout work.

BOSTON, O. W. Engineering shop practice. 2v. 1933-5. 539p.; 485p. illus. diag. Wiley, $5.50; $5. (M; SE: E)

A text and reference book on machine tools, machine operations, and factory production methods. Volume 1: Machine shop, lathes, planers, shapers, cutting tools, milling, sawing, drilling, boring, reaming, and threading. Volume 2: Turret lathes, screw machines, hand-operated and automatic turning machines, broaching, gears and their manufacture, grinding, polishing, buffing, honing, lapping, presses, punches and dies, die casting, cutting fluids, measuring instruments and gages.

BROWN & SHARPE MANUFACTURING CO. Construction and use of Brown & Sharpe automatic screw machines; also automatic turret forming machines, automatic cutting of machines and automatic screw threading machines. 1938. 335p. illus. Author, Providence, R. I., paper, $1. (V; M; SE)

A practical operator's manual.

BURGHARDT, HENRY D. Machine tool operation. 2d ed. 2 parts. 1936-7. 401p.; 512p. McGraw-Hill, $2.25; $2.75. (V; M)

A good general elementary text. Part 1 deals with the lathe, bench work, and work at the forge. Part 2 deals with drilling machines, shapers and planers, milling and grinding machines, hydraulic power transmission, spur gears and bevel gears.

COLVIN, FRED H., and STANLEY, F. A. American machinists' handbook and dictionary of shop terms; a reference book of machine-shop and drawing-room data, methods and definitions. 7th ed. Rev. and enl. 1940. 1366p. illus. diag. McGraw-Hill, $4. (V; M; SE; E)

Includes material on screw threads, pipe and pipe threads, drilling, reaming, tapping, bench work, brazing, soldering, welding, gearing, turning and boring, milling, grinding, honing, lapping, screw machine work, punch press tools, broaching, fasteners, measuring and fitting, tapers, shop drawing, wire gages, shafting, materials, machine forgings, automotive and railroad data, shop trigonometry and shop terms.

JONES, FRANKLIN DAY. Machine shop training course . . . 2v. 1940. 474p.; 552p. illus. diag. Industrial press, $6 set; separately, $4 each. (V; M; SE)

Based on practical experience in many machine shops and manufacturing plants. Volume 1 covers the mechanical feature of lathes, boring and turning machines, drilling and reaming, machine fits, gages and gage blocks; Volume 2, thread cutting, milling operations, grinding, lapping, broaching, bench work, heat-treatment of tool steels and definitions of shop terms.

OBERG, ERIC, and JONES, F. D. Machinery's handbook for machine shop and drafting rooms; a reference book on machine design and shop practice for the mechanical engineer, draftsman, toolmaker and machinist. 10th ed. 1939. 1815p. diag. tab. Industrial press, $6. (M; SE; E)

Includes extensive mathematical tables, mechanics, strength of materials, gearing, speeds and feeds, limits, gages, bolts and screws, screw threads, small tools, steel alloys, electric motors and weights and measures.

TURNER, FREDERICK W. Machine shop work. A comprehensive treatise on approved shop methods including construction and use of tools and machines, details of their efficient operation and a discussion of modern production methods . . . 5th ed., rev. c1939. 412p. illus. American technical society, $2.75. (V; M)

Explains the construction and operation of hand and power-driven tools, gear cutting machines, turret lathes, automatic screw machines, grinding, milling, drilling and boring machines and air tools. Elementary. For apprentices and machinists.

Mathematics

BOLLENBACHER, CHARLES EDWARD. Practical mathematics for toolmakers and machinists. 1938. 73p. illus. Author, 31 Benedict ave., Norwalk, Ohio, paper, $1. (V; M)

Simplified mathematical shortcuts and methods for use in shop practice, machining and milling, screw threads and metal fits. Also briefly describes arc welding, micrometer reading, and indexing. Brief, practical.

DOWNER, A. E. Practical mathematics of aviation. 1939. 110p. diag. Pitman, $1. (V; M)

Starts with a review of simple arithmetic and progresses into elementary algebra, trigonometry, simple mechanics and the graphical solution of oblique triangles. Includes over 400 practical problems. Author is instructor at Cass technical high school, Detroit.

KEAL, HARRY MORTON. Mathematics for shop and drawing students. 2d ed. 1938. 225p. illus. Wiley, $1.60. (V; M)

For industrial workers and students who have not completed high school.

MAEDEL, GEORGE F. Mathematics for radio and communication. Book 1. Arithmetic, algebra, geometry . . . 1938. 314p. diag. Prentice-Hall, $3.75. (V; M)

Presents practical mathematical training for radio students. Answers are given for all problems in the text—over 1000 of them. Suitable for home-study or classroom work.

WOLFE, JOHN H., and PHELPS, E. R. Practical shop mathematics. 2d ed. 2v. 1939. 349p.; 318p. illus. McGraw-Hill, each, $2.20. (V; M)

Practical mathematics for the tool and diemaker, draftsman and machinist. Volume 1, fractions, decimals, algebra, trigonometry; Volume 2, compound angles, screw threads, indexing and combining gears and continued fractions.

Mechanical Drawing

(*See also* Blueprint Reading)

AMERICAN STANDARDS ASSOCIATION. American standard drawings and drafting room practice; includes arrangement of views, line-work, dimensioning sheet sizes and lettering. 1935. 24p. diag. The Association, 29 West 39th st., N. Y. paper, 50c. (V; M; SE; E)

A standard practice code for drafting rooms.

BISHOP, C. C. Electrical drafting and design. 2d ed. 1931. 190p. illus. diag. McGraw-Hill, $2. (SE)

Presupposes a good working knowledge of mechanical drawing and electricity. Includes material on electrical symbols, generator and feeder panels, three phase panels, substations, laying out wiring, residential wiring and illumination.

CROOK, THURMAN CHARLES. Simplified mechanical drawing; a textbook for beginners. Rev. ed. 1935. 174p. illus. McGraw-Hill, $1.28. (V; M)

A clear, elementary textbook for seventh, eighth and ninth grade students.

FRENCH, THOMAS EWING. A manual of engineering drawing for students and draftsmen. 5th ed. 1935. 481p. illus. McGraw-Hill, $3. (SE)

Conforms to the latest American standards association standards for drawing and drafting room practice. Discusses all phases of engineering drawing.

GIESECKE, F. E. Technical drawing. 2d ed. 1936. 566p. diag. Macmillan, $3. (SE)

An advanced comprehensive text for student engineers. Covers instruments and materials, geometry of technical drawing; lettering, projections, multiview projections, pictorial drawing, intersections and developments, dimensioning, sketching, graphs, architectural, structural and topographic drawing, and blueprints. Van Dyke and other reproduction processes.

THOMPSON, JAMES G. Aircraft drafting room manual. 1939. 285p. illus. diag. Aviation press, San Francisco, $3.50. (SE; E)

"A comprehensive drafting room reference handbook for the airplane designer and draftsman." Does not explain how to prepare mechanical drawings but tells what to include in the drawing. A thoroughly practical discussion of airplane drafting room practices and systems, the materials used in aircraft, manufacturing processes, finishes and design data. Well illustrated with drawings of commercial airplanes. Author is connected with Vultee division of the Aviation manufacturing corporation.

Ordnance

HAYES, THOMAS J. Elements of ordnance; a textbook for the use of cadets of the U. S. Military academy. 1938. 715p. illus. diag. Wiley, $6.50. (SE; E)

A revision of *Ordnance and gunnery* by Earl McFarland (1929). Considers the theory and basic principles underlying the construction, operation and use of modern ordnance. Separate chapters discuss explosives, types of metals used and their treatment, gun construction, breech mechanisms, recoil systems, mobile artillery, fire control instruments, rifles, etc.

U. S. NAVAL ACADEMY. Naval ordnance; a textbook prepared for the use of midshipmen of the U. S. Military academy . . . 12th ed. 1937. 481p. illus. pl. Author, Annapolis, Md., $6. (SE; E)

Includes technical information on explosives, interior ballistics, guns, elastic strength of guns, construction of naval guns, breech mechanisms, firing attachments, naval gun mounts, recoil and recoil brakes, gun sights, armor, projectiles, ammunition, naval proving ground, naval landing gun, small arms and machine guns.

Patternmaking

(*See also* Woodworking)

FULLER, CHARLES F. and OTHERS. Metal pattern making. 1928. 172p. illus. International textbook co., $1.75. (V; M)

Clear description of the materials and equipment of making metal patterns, grouping of patterns, mounting metal patterns on molding machines, use of cast pattern plates, and making of stove patterns.

HALL, B. RUPERT, and KILEY, H. E. Pattern design. 1939. 193p. illus. diag. International textbook co., $2. (M; SE)

Describes the principles involved in designing and constructing wood patterns. Twenty-seven problems are included for classroom work.

MCCASLIN, H. J. Wood patternmaking. 2d ed. 1932. 311p. illus. McGraw-Hill, $2.25. (V; M)

Textbook based on a progressive series of problems. Concerned with practice where castings are to be made in individual molds, rather than by machine molding. Clear and elementary.

RICHARDS, WILLIAM H. Principles of pattern and foundry practice; a textbook in theory and practice for the use of students in universities and technical institutions. 1930. 185p. illus. McGraw-Hill, $1.60. (V; M; SE)

RITCHEY, JAMES, and OTHERS. Pattern making; a practical treatise for the pattern maker on woodworking and wood turning, tools and equipment, construction of simple and complicated patterns, modern molding machines and molding practice. Revised . . . 1938. 233p. illus. diag. American technical society, $2. (V; M)

This revision of the 1933 edition includes a new section on metal patternmaking.

Radio

ANDERSON, EDWIN P. Audels new radioman's guide; theory, construction, servicing, television. 1939. 756p. illus. Audel, $4. (V; M)

Especially valuable to the practical beginner, radio amateur and serviceman. Describes clearly the fundamental theory and practical applications of sound, electricity, radio principles, broadcasting and receiving equipment and operation. Also considers marine and airplane radio, public address systems, radio beacon and compass, automatic alarms and television.

EDDY, MYRON F. Aeronautic radio; a manual for operators, pilots, radio mechanics. 1939. 502p. illus. Ronald press, $4.50. (M; SE)

Based on the author's experience as chief instructor of aircraft radio at the Stewart technical school. An elementary exposition of the fundamentals of electricity as applied to aircraft radios, radio circuits, power units, tubes and batteries. Will enable the careful reader to pass the theoretical part of the examination for an aircraft radio operator. Suitable for home study or classroom work.

GHIRARDI, ALFRED A. Modern radio servicing; a practical text on the theory, construction and use of modern radio servicing equipment; the rapid systematic methods and technique of radio servicing in all its branches; and also tested methods of selling it to the public. Rev. ed. 1936. 1302p. illus. Radio & technical pub. co., 45 Astor pl., N. Y., $4. (V; M)

The subtitle accurately describes the clear, practical manual.

HICKS, H. J. Principles and practice of radio servicing. 1939. 305p. illus. diag. McGraw-Hill, $3. (V; M)

A practical manual for the radio repairman, explaining the equipment and methods used in testing and servicing modern radio receiving sets. Requires only an elementary knowledge of mathematics.

MORGAN, HOWARD K. Aircraft radio and electrical equipment. 1939. 374p. illus. Pitman, $4.50. (M; SE)

Based on the author's experience as chief radio engineer of the TWA. This clearly written treatise explains the fundamentals of electricity by means of hydraulic analogies. Separate chapters are devoted to condensers and coils, accessory equipment, commercial aircraft transmitters and receivers, amplifiers, inspection and maintenance. Numerous worked problems illustrate the textual explanations. Suitable for home study and classroom use.

STERLING, GEORGE E. The radio manual for radio engineers, inspectors, students, operators and radio fans. 3d ed. 1938. 1120p. illus. diag. Van Nostrand, $6. (M; SE; E)

A most useful handbook covering all details of radio, transmitters and receivers, radio equipment, and radio fundamentals. Aircraft, marine, police, and teletype radios are also discussed. An important feature is the description of and maintenance data for representative commercial apparatus.

Sandblasting

REAMS, C. A. Modern blast cleaning and ventilation. 1939. 213p. illus. Penton pub. co., $4. (M; SE; E)

A general practical survey of blast cleaning (both compressed air and impact) equipment, methods and safety devices. A number of specific industrial uses are explained and illustrated. Based on the author's experience as an engineer for the Ford motor company.

ROSENBERGER, WILLIAM A. Impact cleaning. 1939. 466p. diag. Penton pub. co., $7. (M; SE; E)

Considers the design, uses and maintenance of the equipment used in the impact-cleaning of ferrous and non-ferrous materials. Explains in detail the theory and practical application of nozzle blast cleaning (sandblast, water blast, steam blast, etc.). Also discusses the best types of ventilation systems for use with impact cleaning equipment. More theoretical and technical than the book by Reams.

Sheet Metalwork

KOTHE, O. W. Duct construction; a handbook on the fabrication and installation of heating, ventilating and air conditioning ducts, round pipes, stacks, fittings, heater, coils and washer housings; figuring areas and taking off quantities of materials, etc. 1937. 270p. illus. Sheet metal pub. co., 45 West 45th st., N. Y., $3. (V; M)

A practical working manual.

NEUBECKER, WILLIAM. Sheet metal work; a manual of practical self-instruction in the art of pattern drafting and construction work in light and heavy-gauge metal, including skylights, roofing, cornice work, patterns for forced-air fittings, etc. 1938. 360p. illus. American technical society, $2.50. (V; M)

Suitable for home study.

OGILVIE, FRANK L. Sheet metal pattern drafting made easy, with bench notes. 1937. 101p. diag. tab. Sheet metal pub. co., $2.50. (V; M)

Progresses in easy stages from simple projects to the more difficult ones. Full directions accompany each project drawing. Some data is also included on shop methods, sheet metal and mathematical tables.

PAULL, JAMES H. Industrial sheet metal drawing. 1938. 153p. illus. Van Nostrand, $1.50. (V; M)

An elementary text based on a course given at the Ford motor company, Apprentice school. Explains many industrial and engineering applications of sheet metalwork by means of over 200 problems, accompanied by working drawings. Should be intelligible to the high school student.

UNITED STATES STEEL CORPORATION. Fabrication of U. S. S. stainless steels. 1940. 92p. illus. Carnegie-Illinois steel corp., Pittsburgh, $1. (M; SE; E)

Detailed information on the technical and practical aspects of stainless steel fabrication. Part 1, welding, riveting, soldering, and joint design; Part 2, machining, cutting, forming, annealing and pickling operations; Part 3, surface finishing and protection.

Shipbuilding and Naval Architecture

MANNING, G. C., and SCHUMACHER, T. L. Principles of warship construction and damage control; a treatise on the fundamental principles of naval architecture, warship design and construction, and the control of hull damage especially prepared to furnish in compact form the information required by the operating personnel of the U. S. Navy. 4th ed. 1935. 396p. illus. pl. U. S. Naval institute, Annapolis, Md., $4.50. (SE; E)

A text for the use of midshipmen at Annapolis.

ROSSELL, HENRY E. Riveting and arc welding in ship construction. 1934. 210p. illus. Simmons-Boardman, $2.25. (SE; E)

A technical design manual for student engineers, ship draftsmen and structural engineers.

——and CHAPMAN, L. B. Principles of naval architecture. 2v. 1939. 291p.; 242p. diag. tab. Society of naval architects and marine engineers, 29 W. 39th st., N. Y., $11. (SE; E)

A comprehensive consideration of the theoretical and practical aspects of naval architecture. Volume 1, Geometry of the ship, freeboard, tonnage and capacity, transverse stability, longitudinal stability and trim, subdivision and strength of ships and launching. Volume 2, Motion of ships among waves, resistance and powering, propulsion, propellers and steering.

SWANSON, W. E. Modern shipfitter's handbook. 1940. 256p. diag. Cornell maritime press, 350 W. 23d st., N. Y., $2.50. (Publication date August 5) (V; M)

Covers every phase of welded ship construction from the mold loft to launching. Clear descriptions and over 200 working drawings explain blueprint reading, mold loft, assembly, erection, riveting, rigging, welding and launching. Written in practical language. Fourteen-page glossary of construction terms.

TULIN, ADAM F. Practical shell developing for steel shipbuilders; a manual for loftsmen, ship fitters, hull draftsmen and others who deal with ship construction. 1938. 153p. diag. Simmons-Boardman, $3. (M; SE; E)

Clearly explains the most extensively used methods of developing shell plating, i.e., the Centre spot squaring method and the Edge squaring method. Presupposes some knowledge of the minor fundamentals of shell development and laying out.

Tanks

JONES, RALPH E. and OTHERS. The fighting tanks since 1916. 1933. 325p. illus. diag. National service pub. co., Washington, D. C., $3.75. (M; SE; E)

The first 11 chapters discuss American, French, British, and German tank combat history and describe operating weaknesses and failures. The next 14 chapters describe and compare the tanks of U. S., French, British, German, Italian, Russian, Japanese, Swedish, Czechoslovakian, Spanish and Polish design. Tank design and the design of miscellaneous military vehicles are also considered. The final nine chapters consider tank combat principles, obstacles, communication and control, supply and salvage.

Toolmaking

(*See also* Die Design and Diemaking)

ALDEN, ROGER O. Toolmaking. 1935. 183p. illus. International textbook co., $1.80. (V; M)

Offers a practical elementary description of toolroom work, taps, hobs, thread-cutting dies, reamers, tool cutting theory, counter bores, hollow mills, forming tools and broaches.

COLE, CHARLES B. Tool making. Toolrooms tools and equipment, machine tools, heat treating processes, production methods, production tools. 1939. 424p. illus. diag. American technical society, $3.50. (V)

An elementary textbook for the apprentice and beginning toolmaker. Describes metalworking tools and equipment and shows by actual examples how they are to be used. Clearly written and well illustrated with drawings, photographs, and charts.

PALMER, FRANK R. Tool steel simplified; a handbook of modern practice for the man who makes tools. 1937. 316p. illus. diag. tables. Carpenter steel co., Reading, Pa., $1 in U. S.; $3.50 elsewhere. (M; SE; E)

The first three sections clearly explain all types, properties, selection, heat treatment and testing of tool steels. The fourth section explains more advanced procedure "and might be considered as a sort of postgraduate knowledge." The final part consists of tables. An extremely valuable book.

Welding

AMERICAN WELDING SOCIETY. Welding handbook. 1938. 1211p. illus. diag. The Society, 33 W. 39th st., N. Y., $6. (M; SE; E)

A comprehensive handbook covering the fundamentals of the various welding processes; materials, metallurgy and testing; and the application of welding to numerous industrial uses, such as ships, tanks, machinery, buildings, automobiles, aircraft and railroads. The separate chapters were written by 90 experts who were assisted by over 230 other authorities.

GRAHAM, FRANK D. Audels welders guide. 1940. 422p. illus. diag. Audel, $3.50. (V; M)

Progresses in an orderly fashion from the fundamentals to the more specialized techniques of both hand and machine welding. Written in question and answer form for the welder and welding machine operator. Well illustrated with photographs and line drawings.

GIACHINO, J. W. Oxyacetylene welding for beginners. 1939. 96p. illus. Manual arts press, $1.48. (V)

An elementary book of 23 lessons for the high school or vocational school student. Explains the apparatus, use of tools, procedure, metals and safeguards.

KEHL, ROBERT J., and POTTER, M. H. Oxyacetylene welding. 3d rev. ed. 1938. 130p. illus. diag. American technical society, $1.25. (V; M)

Brief elementary manual on the oxyacetylene welding of steel, cast iron, pipe, bronze, hard-surfacing, malleable iron, aluminum and copper. Also includes material on soldering, cutting and lead burning, automobile repair welding and welding costs.

LINCOLN ELECTRIC COMPANY. Arc welding in design, manufacture and construction. 1939. 1408p. illus. diag. The Company, $1.50. (SE; E)

One hundred and twenty-six authors prepared the material included in this massive volume. The 10 sections contain design, manufacture and construction data for automobiles, aircraft, railroads, watercraft, structural, furniture and fixtures, commercial welding—automotive repair—welderies, containers, machinery and jigs and fixtures. Each section contains a number of chapters on special phases of the subject.

——Procedure handbook of arc welding design and practice. 6th ed. 1940. 1117p. illus. diag. The Company, $1.50. (M; SE; E)

Comprehensive, clearly written handbook on the practical applications of arc welding. Detailed information on welding methods, techniques, procedures, costs, testing, weldability of metals, welded steel construction, machine design and design of arc welded structures. Almost one third of the book is devoted to typical industrial application of arc welding in automobile, aircraft, machine tool, construction, sheet metalwork and shipbuilding, etc. Contains many charts, diagrams and specifications.

LINDE AIR PRODUCTS COMPANY. The oxwelder's handbook; instructions for welding and cutting by the oxy-acetylene process. 14th ed., completely rewritten. 1937. 331p. illus. diag. The Company, 33 East 42d st., N. Y., $1. (M)

Forty-one chapters of practical information on all phases and types of oxyacetylene welding. A practical working manual for the operator.

MACKENZIE, L. B. and CARD, H. S. The welding encyclopedia; a practical reference book on metallic arc, carbon arc, oxyacetylene, electric spot, butt, flash and resistance welding, thermit welding and metal spraying. 9th ed. 1938. 696p. illus. col. plates. Welding engineer pub. co., 506 S. Wabash ave., Chic., $5. (M; SE; E)

Descriptive information on all welding processes and their application. Extensive sections on aircraft, automotive, boiler machinery, locomotive, pipe, structural and tank welding. Lists trade names. Alphabetical arrangement.

PLUMLEY, STUART. Oxy-acetylene and arc welding; a course of instruction. 3d ed. 1939. 402p. illus. diag. University printing co., Minneapolis, Minn., $5. (V; M)

A course of instruction consisting of 20 lessons which progress from simple to the more complicated types of welding. Each lesson starts with a job sheet which describes the work to be performed and the methods to be used. Contains a good section on airplane welding and an outline of welding codes, alloy overlays; welding saws, methods and miscellaneous data. Excellent illustrations.

POTTER, MORGAN H. Electric welding; a practical text covering the fundamental principles and applications of the various types of electric

arc welding, including the use of power tube rectifiers. 1938. 119p. illus. American technical society, $1.25. (V; M)

Brief, elementary, practical.

Woodworking

(*See also* Patternmaking)

HJORTH, HERMAN. Machine woodworking. 1937. 371p. illus. Bruce pub. co., $3.50. (V; M)

Clearly and accurately describes the various woodworking machines and the operations which can be performed in them. Separate chapters discuss circular saws, band and jig saws, planing and scraping machines, shapers and routers, mortisers, borers and tenoners, lathes, sanding machines, glueroom machinery, shop layout and maintenance.

——Principles of woodworking. 1930. 307p. illus. diag. Bruce pub. co., $1.76. (V)

An elementary manual on hand tools, machine tools, planing and squaring, joints, gluing and clamping, hardware, wood turning, surface decoration, upholstery, wood finishing, wood. The final chapter explains the construction of numerous useful pieces of furniture.

TRAYER, GEORGE W. Wood in aircraft construction; supply, suitability, handling, fabrication, design. 1930. 276p. National lumber manufacturers assoc., Washington, D. C., $2.50. (M; SE; E)

Technical information for the designer on the physical properties, selection, seasoning, bending and gluing of aircraft woods. There are also sections on advanced methods for calculating the strength of various parts and on the microscopical identification and structure of wood.

An Annotated Bibliography of Books & Pamphlets on Certain Mechanical and Allied Trades is a useful recent selection of technical material, compiled by Charles J. Boorkman, librarian of the N.Y.A. Quoddy Regional Project (March 1940. 137p. mimeographed). This is a revised and enlarged edition of the bibliography compiled by R. Russell Munn. The emphasis is on technical material which is specifically related to the trades offered at the project and is, at the same time, simple enough to be intelligible to beginners in those trades. The bibliography will be distributed free while the supply lasts, to schools and libraries, from the National Youth Administration, Quoddy Regional Project, Quoddy Village, Maine.

Additional copies of this list may be obtained from the American Library Association, Chicago, at the following prices: Single copy, 25c; 10 copies, $1; 25, $2; 50, $3; 100, $5.